Solid Earth
Discussions

Open Access

Interactive comment on "Responses of vertical soil moisture to rainfall pulses and land uses in a typical loess hilly area, China" *by* Y. Yu et al.

L.P.A. Parras-Alcántara (Referee)

qe1paall@uco.es

Journal: Solid Earth Discuss., 6, 3111–3139, 2014 Manuscript ID: SE-2014-109 Type: Research Article Title: Responses of vertical soil moisture to rainfall pulses and land uses in a typical loess hilly area, China Short title:

General Comments This paper attempts to analyze the response of soil moisture variations to rainfall pulses by in-situ consecutive monitoring of five typical vegetation types in the loess hilly area of China, including artificial grassland, cropland, shrubland, woodland and native grassland both during and after each rainfall pulse at plot scale. This manuscript would be of interest to readers of Solid Earth, BUT the article would not be acceptable for the journal in the present form. I suggest minor revision. In general, the English should be improved.

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

Detailed Comments Before making any comment, I have read the paper carefully and I have seen that the paper would be improved if the following comments were accepted by the authors

ABSTRACT

The authors state that . . . "In this study, vertical soil moisture variations of woodland (Pinus tabulaeformis), native grassland (Stipa bungeana), shrubland (Hippophea rhamnoides), cropland (Triticum aestivum) and artificial grassland (Onobrychis viciaefolia) in five soil profiles were monitored in a typical loess hilly area during the 2010 growing season". I have searched the characteristics of these five soil profiles in the paper and I have not found anything. Please to add a table with the main features of the five soil profiles, for horizons or for soil control sections. Indicating at least texture, porosity, organic matter, bulk density ... etc. I think that these parameters are essentials to analyze the variations of soil moisture regime as a function of use, especially in Calcic Cambisol, characterized by cambic horizon presence (Bw).

The rest of the abstract is very clear

INTRODUCTION

The authors reported the precipitation effects only. Indicating issues that are known. Nevertheless they do not indicate anything about the soils physical and chemical properties in Cambisols, which obviously affect to soil moisture regime. In this respect, I recommend that the authors should read some paper of Parras-Alcántara or Lozano-García that have studied physical and chemical properties in Cambisols in semiarid environments, plus some Pf. Cerdá paper. In addition SE is international journal, the paper will give a more global vision. Hereby the introduction would be improved enough

MATERIALS AND METHODS

Study site

Regarding the study area I have some questions .... please clarify.

- . . .annual mean precipitation of 408mm (1958–2004). Is not information very ancient? - . . .The mean annual potential transpiration is 1510 mm. . . .potential transpiration or potential evapotranspiration? - . . . The soil at the study site is of the Calcic Cambisol group in the FAO-UNESCO classification system (FAO-UNESCO, 1974). . . . Why a more recent classification is not used?....for example. . . .IUSS-ISRIC-FAO, 2006. World Reference Base for Soil Resources. International Union of Soil Science, International Soil Reference and Information Centre. Food and Agriculture Organization of the United Nations, Rome, Italy. - It exhibits a unique texture composed of 50% silt (0.01–0.05 mm), 39% clay (< 0.01 mm) and 11% sand (> 0.05 mm). . . These data do not provide information on soil. . .. these data are mean soil values? - The soil thickness varies from 40 to 60 m in the same region. . .. these data are correct?. As I said before it would be interesting to incorporate soil physical-chemical properties, beside updating some information.

Experimental design, Measurement sensor and Statistical analysis,

It's all right.

RESULTS

The results are well prepared. But, I think that to clarify and justify the results you should start with physical-chemical soil analysis by horizons or soil control section (0-20, 20-40. . .etc). Also, you should take into account land use, and even take into account the land use change occurred in the study area. It is also important that you clarify management especially in grassland (native and artificial)

DISCUSSION

Similar to results. The discussion is poor, mixing results and not clarifying the basic questions of work done. The discussion should be shorter and concise.

CONCLUSIONS

Regarding the conclusions are quite clear, but it could improve a lot if you will

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

incorporate physical parameters such as texture, bulk density, organic matter, porosity ... etc.

Please also note the supplement to this comment:
http://www.solid-earth-discuss.net/6/C1467/2014/sed-6-C1467-2014-supplement.pdf

———————————————

Interactive comment on Solid Earth Discuss., 6, 3111, 2014.

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper